

Environmental LoRa sensor - Temperature, humidity, light



LoraSensor ST

Description:

LoraSensor ST 1.0 is a long range LoRa Sensor. It is projected to be used in private and industrial sector and measures LUX, temperature and humidity with 2xAA battery power that ensures long duration, easy replacement and secure transmission of data.

LoraSensor ST is ready to plug and play inserted in smart Italtronic Thermo 80 box, with easy wall mounting, in domestic, industrial and public environment, with elegant design.

Data transmission and management of sensors is entrusted to Dragino LoraST module, tested for any required world frequency.

Measured data are:

- Temperature -20 +60 (Silicon Labs Si7021-A20-GM or Bosch BME280)
- Humidity 0-100 %RH (Silicon Labs Si7021-A20-GM or Bosch BME280)
- Visible Lux 0.24 to 16,000 (Intersil ISL29023)
- IR Lux (Intersil ISL29023)

LoraSensor ST is ready to use, just linking a LG01 or LG02 LoRa gateway and a IoT platform (www.thethingsnetwork.org or www.creatio-control.com) and data are immediately available. It helps users to convert an idea into practical application and render Internet of Things as a reality.

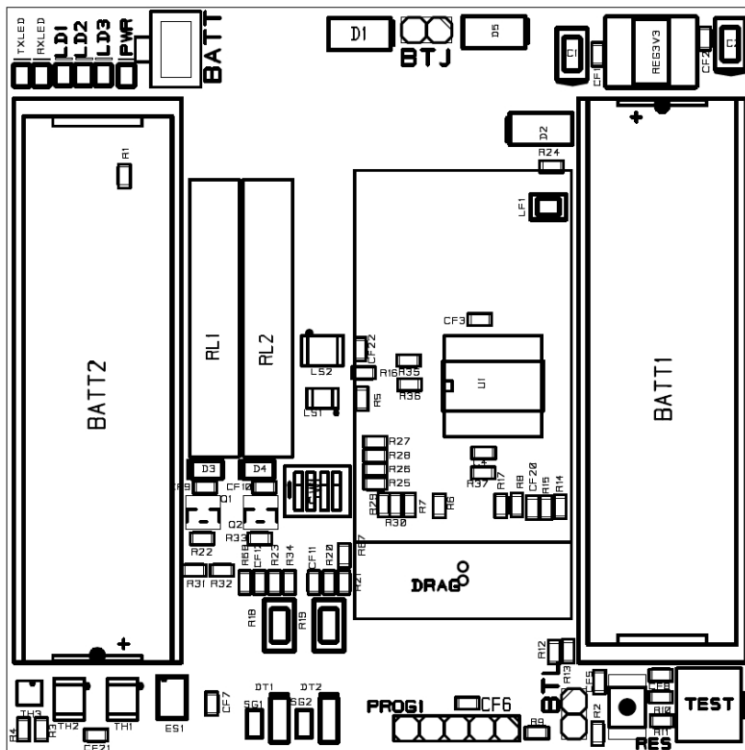
It provides ultra-long range spread spectrum communication and high interference immunity, reducing to a minimum the consumption of power. It satisfied professional applications for wireless sensors networks as environment measures, smart metering, smart city, building automation.

LoraSensor ST uses microprocessor STM3210x, contained in LoraST module, taking advantage of all characteristics of low consumption and easy programming of processor Cortex. LoraSensor ST is a open source product based on controller STM32Cube HAL and a lot of libraries are available for a quick development of the product.

Creatio supplies source code to customize it and a complete list of precompiled codes ready to use.

Characteristics:

- Temperature sensor Silicon Labs Si7021-A20-GM, Bosch BME280, Sensiron SHT25
- Light sensor Intersil ISL29023, Taos TCS3414FN
- Slot for Dragino LoraST board
- LoRa band available at 433/868/915/920 Mhz
- Open Software and hardware, development kit STM32CubeMX, compiler IAR 8.20
- Source code download from www.creatio-control.com
- BOX Thermo 80 Italtronic, best design ready to use.
- Parameters programmable from RS232 through AT commands (ABP, OTAA, KEYs, device operation mode ecc)
- Quick programming with DIP switch for transmission intervals in operation mode.
- Battery 2xAA di long duration and easy replacement
- Low consumption
- Customizable logo for big quantities.



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Specifications:

MCU:

- Dragino LoraST board
- MCU: STM32L072CZT6
- Flash: 192 KB
- RAM: 20KB
- EEPROM: 6 KB
- Clock speed: 32MHz

LoRa:

- LoRa Chip: SX1276/SX1278
- 68 dB maximum link budget.
- Constant RF output +20 dBm - 100mW
- +14 dBm maximum efficiency PA
- Bit rate programmable upto 300 kbps.
- High sensibility: upto -148 dBm
- Dynamic range RSSI 127 dB
- Specifications LoRaWAN 1.0.2

Characteristics DC:

- External battery: range 2.1 v - 3.6 v
- Internal battery 2xAA
- MicroUSB: 5V 1A standard AC/DC power supply
- Operation Temperature: -40°C +85°C

Consumption:

- Mode STOP: 3.1 uA @ 3.3v
- Mode transmission LoRa:
125mA @ 20 dBm
44mA @ 14 dBm

Battery

- Internal battery 2xAA
- Capacity: LR6 1800-2600 mAh
FR6 2700-3400 mAh
- Autodownload: < 1% / year @ 25°C

Applications:

- Environmental conditions measurement system.
- Domotics and building automation
- Industrial control and monitoring

Dimensions:

- PCB: 75.3 x 75.3 x 15.0 mm
- Thermo 80 CSF (External power + I/O relay): 80.0 x 80.0 x 34.2
- Thermo 80 CSF (Battery power): 80.0 x 80.0 x 25.0
- Net weight: 140 g

Order Info

- LRS10-LTH01-BAT Measures visible LUX + Infrared (ISL29023) and temperature + humidity (Si7021-A20-GM) power supply 2xAA
- LRS10-LTH02-BAT Measures RGB LUX (TCS3414FN) and temperature + humidity (Si7021-A20-GM) power supply 2xAA

Note: power supply AC/DC 5V 1A and batteries not included